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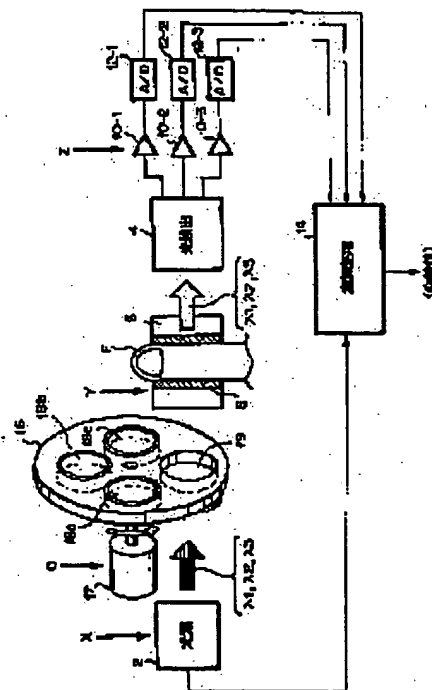
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## (54) REFERENCE BODY FOR CALIBRATION IN MEASUREMENT OF BLOOD SUGAR LEVEL AS WELL AS METHOD AND APPARATUS FOR MEASUREMENT OF BLOOD SUGAR LEVEL BY USING IT

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To obtain a reference body by which a calibrating operation dealing with a change in an environmental condition is performed with high accuracy when a blood sugar level is found by an infrared analysis and by which the measuring accuracy of the measurement of a noninvasive blood sugar level is enhanced.

**SOLUTION:** A part F to be measured is pressed by a cuff 8. The flow of venous blood in the part F to be measured is stopped. The part F, to be measured, in a living body is irradiated with near-infrared rays at a near-field wavelengths  $\lambda_1, \lambda_2, \lambda_3$  from a light source 2. Intensities of transmitted rays at the three wavelengths are detected simultaneously by a photodetector 4. Intensities are detected in the same manner with reference to a reference body 18a. In a computing and processing circuit 14. The quadratic differential value of an absorbance by the reference body 18a is measured on the basis of a transmitted-light-intensity detection value. A measuring system is calibrated. The quadratic differential value of an absorbance in the part F, to be measured, is calculated on the basis of the transmitted-light-intensity detection value. Its mean value within a prescribed time is found. A blood sugar level which corresponds to it is found. As the reference body 18a, a glucose aqueous solution in which cerium oxide particles scattering the near-infrared rays and a gelling agent are contained is housed inside a glass container through which the near-infrared rays are transmitted.



### LEGAL STATUS

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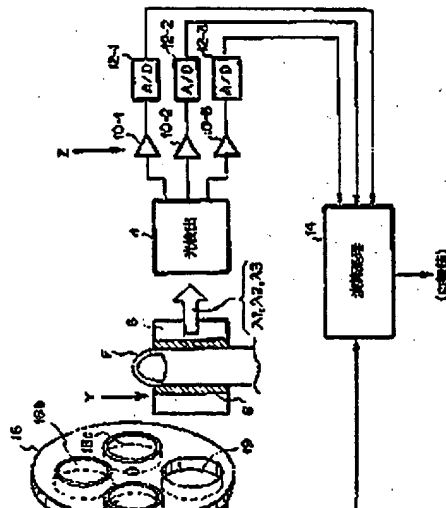
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(54) 【発明の名称】 血糖値測定における校正用参照体ならびにこれを用いた血糖値測定方法及び血糖値測定装置

(57) 【要約】

【課題】 赤外光分析により血糖値を求める際の環境条件変化などに対処する校正を高精度に行い、無侵襲血糖値測定の測定精度を向上させる。

【解決手段】 カフ8により押圧して被測定部位Fの静脈血流を停止させ、光源2から近接波長 $\lambda_1$ ,  $\lambda_2$ ,  $\lambda_3$ の近赤外光を生体被測定部位Fに照射し、透過した3波長光の強度を光検出器4により同時検出する。参照体18aに対しても同様に検出する。演算処理回路14において、透過光強度検出値に基づき参照体18aによる吸光度2次微分値を算出して測定系を校正し、透過光強度検出値に基づき被測定部位Fによる吸光度2次微分値を算出し、その所定時間内の平均値を求め、これに相当する血糖値を求める。参照体18aは、近赤外光を透過



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